10 SAGITTÆ.—Mr. S. C. Chandler has discussed, in the *Astronomische Nachrichten*, Mr. Gore's observations of this star, together with some of his own, and some observations made for the Harvard and Oxford Photometric Catalogues. The result of his inquiry is to give M = 1885 December 4d. 9h. 36m. G.M.T. + 8d. 9h. 11·0m. (E − 391), the duration of increase being 3·00d., and of decrease 5·38d., and the magnitude at maximum being 5·6, and at minimum 6·4. Mr. Chandler considers it likely that the period will prove to be within two minutes of the truth. Mr. Espin's value, however, is 1h. 28m. shorter.

THE OBSERVATORY OF RIO DE JANEIRO.—M. Cruls, in a communication to the Paris Academy of Sciences, states that the long-talked-of transference of the Rio Observatory is about to be commenced. The site chosen lies nearly on the same parallel as the present Observatory, but two minutes farther to the west. The Brazilian Observatory possesses, from its proximity to the tropic, an advantage over all others, in that for forty days in the year the sun's zenith distance does not exceed 1°. M. Cruls anticipates that in the new edifice he will be able to undertake, with success, observations of terrestrial magnetism, and of atmospheric electricity, and he would wish to set up a delicate seismograph for recording slight movements of the soil. He trusts also that the Observatory will bear its share in the great photographic survey of the heavens proposed by Admiral Mouchez.

## ASTRONOMICAL PHENOMENA FOR THE WEEK 1886 OCTOBER 24–30

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

*At Greenwich on October* 24

Sun rises, 6h. 41m.; souths, 11h. 44m. 16·6s.; sets, 16h. 47m.; decl. on meridian, 11° 50′ S.: Sidereal Time at Sunset, 18h. 59m.

Moon (New on October 27) rises, 2h. 37m.; souths, 9h. 19m.; sets, 15h. 48m.; decl. on meridian, 4° 45′ N.

| Planet | Rises<br>h. m. | Souths<br>h. m. | Sets<br>h. m. | Decl. on meridian<br>° ′ |
|---|---|---|---|---|
| Mercury | 8 22 | 12 47 | 17 12 | 18 30 S. |
| Venus | 5 41 | 11 9 | 16 37 | 6 58 S. |
| Mars | 10 44 | 14 37 | 18 30 | 23 30 S. |
| Jupiter | 5 33 | 11 3 | 16 33 | 6 37 S. |
| Saturn | 21 24* | 5 26 | 13 28 | 21 18 N. |

* Indicates that the rising is that of the preceding evening.

Oct. h.
30 ... 10 ... Mars in conjunction with and 6° 5′ south of the Moon.

*Variable Stars*

| Star | R.A.<br>h. m. | Decl.<br>° ′ | | h. m. | |
|---|---|---|---|---|---|
| U Cephei | 0 52·2 | 81 16 N. | Oct. 24, | 4 51 | *m* |
| | | | ,, 28, | 4 30 | *m* |
| R Ceti | 2 20·2 | 0 42 S. | ,, 29, | | *M* |
| Algol | 3 0·8 | 40 31 N. | ,, 24, | 23 3 | *m* |
| | | | ,, 27, | 19 52 | *m* |
| λ Tauri | 3 54·4 | 12 10 N. | ,, 25, | 22 30 | *m* |
| | | | ,, 29, | 21 22 | *m* |
| U Ophiuchi | 17 10·8 | 1 20 N. | ,, 24, | 1 19 | *m* |
| | | | and at intervals of | 20 8 | |
| β Lyræ | 18 45·9 | 33 14 N. | Oct. 30, | 21 30 | *m* |
| S Vulpeculæ | 19 43·7 | 27 0 N. | ,, 28, | | *M* |
| R Sagittæ | 20 8·9 | 16 23 N. | ,, 29, | | *m* |
| δ Cephei | 22 24·9 | 57 50 N. | ,, 25, | 2 30 | *M* |
| | | | ,, 28, | 21 30 | *m* |

*M* signifies maximum; *m* minimum.

*Meteor Showers*

The present week offers fewer active radiants than the one just past. The following radiants are, however, represented:—Near β Canis Minoris, R.A. 105°, Decl. 12° N.; and from Cancer, R.A. 133°, Decl. 21° N. Both yield swift meteors, especially the latter. October 24 and 29 are fireball dates.

## GEOGRAPHICAL NOTES

THE last volume of the *Izvestia* of the Caucasus Geographical Society (vol. viii. 2) contains a great variety of geographical information. General Stebnitzky contributes a most interesting paper on the figure of the earth, being a discussion of results obtained from pendulum-observations in connection with the opinions expressed by M. Faye. An excellent map of the province of Kubañ, on a scale of 13 miles to an inch, is accompanied by a sketch of the colonisation of the province, which already has a Russian population of more than one million inhabitants. M. Koshkul gives a short description of the "Naphtha Mountain," in the Transcaspian region. The telegraphic determination of the longitudes of Tiflis, Shemakha, and Baku acquires the more interest, as it allows of the determination of the general error (14″·3) of the Caucasian triangulation and the deviations from the vertical line, due to local causes at these three places. A list of points whose positition has been determined by the triangulation made in the Transcaspian region, as also in Khiva and Bukhara, is given by MM. Pervas and Gedeonoff, and will be most welcome to cartographers. Among the notes we notice the following:—On the Caucasians of Kubañ, due to M. Zagursky, whose researches on the languages of the Caucasus are always so great a help to ethnography; a list of the Caucasian population in Kubañ in 1883, from which we learn that from Kubañ alone no less than 13,600 Circassians have emigrated since 1871; M. Chantre's craniological measurements are summed up by M. Zagursky; and M. Lessar contributes a paper on the north-western frontier of Afghanistan. The "Appendix" shows where the chief attention of the Caucasus Geographical Society is now directed. They contain translations of a work dealing with Armenia (the "Toros Akhpar" guide through Armenia, by the Archbishop Garegin Srvandzyantz); of the Turkish "Salname" for the Erzeroum Vilayet; of notes on Syrian-Khaldeans, by a native from Hosrabad; and of Mr. Charles Wilson's lecture on Asia Minor, delivered before the London Geographical Society.

THE first fascicule of the full Reports of the Polar Meteorological Station at the mouth of the Lena has just been published. It is the first fascicule of the second part, and contains the meteorological observations made since September 1, 1882, to August 31, 1883, compiled by M. Eigner, and published under the supervision of Dr. R. Lenz; the second fascicule of the same volume will contain the meteorological observations in 1883–84; while the first volume is reserved to magnetical observations, and the third will be devoted to the non-obligatory observations, among which the auroræ will occupy a prominent place. The meteorological observations now published, comprise the pressure of air, the temperature, elasticity of vapours, relative moistness, force and duration of wind, nebulosity, snow and rain, as also the temperature on the surface of the soil and the snow, and at depths of 40, 80, and 160 cm., these last two missing for the months of July and August 1883, in consequence of an accident to a thermometer. All observations are given in full, that is, for every hour, as also the monthly averages. The daily range of all elements is also represented by curves, whose scale is exactly that accepted for the publication of the French observations at Cape Horn; the work is accompanied, moreover, by a map of the mouth of the Lena, and of the station itself, as also by a drawing representing the station amidst the tundra, on the banks of a branch of the Lena. A full description of the instruments and their corrections is given both in Russian and in German.

THE October number of the *Proceedings* of the Royal Geographical Society has for its leading paper one by Sir Francis de Winton, on the Congo Free State, the conditions of its administration by Europeans, and its probable future. In this latter respect Sir Francis de Winton is naturally inclined to look on the favourable side. Of more strictly geographical interest is the letter from Mr. Grenfell recounting his latest explorations in the missionary steamer *Peace*, of the tributaries of the Congo, between Leopoldville and Stanley Falls, with very detailed maps.

*Petermann's Mitteilungen* for October contains a long paper by M. Nikitin, the chief geologist of the Russian Geological Committee on Glaciers in Russia. His object is to lay down the limits of the traces of glacial action in that country. Lieut. von François's journeys in the southern Congo basin are the subject of the next paper; and, finally, there is a brief account of the Cunos or Tulé Indians of Darien, from the reports of a missionary sent to labour among them to Bishop Thiel, of Costa Rica, who has communicated them to Herr Polakowsky.

The current *Mittheilungen* (Band xxix. Nos. 7 and 8) of the Geographical Society of Vienna contains letters from Dr. Lenz and Herr Baumann, from the Congo, and part of an account by Dr. Holub of his present journeyings in South Africa. Of special interest are two papers on the Hauslab cartographical collection. One describes the general extent and contents of the collection, which is in three parts: (1) books; (2) engravings; (3) maps. The last contains about 4500 sheets, and is especially rich in old specimens of cartography. Two of these form the subject of a second paper: they are a globe, the author of which is unknown, but which probably dates from soon after Columbus; the other is a chart of the Mediterranean dated 1513.

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## *THE FIFTY-NINTH MEETING OF GERMAN NATURALISTS AND PHYSICIANS, BERLIN, SEPTEMBER 18-27*

[From our Berlin Correspondent]

The present has in every respect been the most important of these annual meetings. Even in the number of visitors it far exceeds any similar reunion since the foundation of the Society, as many as 2224 members, and 1931 associates, or 4155 altogether, having entered their names, while no less than 1496 ladies took part in the general proceedings and social gatherings. It may here be remarked that the constitution of the German Naturalists' Society differs essentially from that of the British Association, as it exists only so long as the meeting lasts, and consists of members—that is, of persons who have published treatises, other than dissertations for academical honours, on general scientific and medical subjects—and of ordinary associates. Two or three sittings are devoted to the formal proceedings, such especially as the choice of the following year's place of meeting, and of the two leaders, whose duty it is to summon the next assembly, and arrange the work on hand. The general sittings are occupied with matter of universal interest, and are attended in common by all members, associates, and ladies. The more strictly scientific work, however, is distributed amongst the several Sections, thirty on this occasion, each of which is presided over by a freshly elected chairman, and set apart for the discussion of papers by specialists. After the last general sitting, at which the annual meeting is officially dissolved, it ceases for the time being to exist. Enjoying no special source of income, and keeping no permanent records, it possesses in the officers appointed to arrange for the next gathering the only germ of a new and equally ephemeral existence. To this temporary organisation corresponds the manner in which its proceedings are issued. An official journal, published only while the gatherings are held, contains the proceedings of the general sittings *in extenso*, those of the various Sections in shorter or more detailed reports. It may here be mentioned that, at the suggestion of the administration, a Commission was on this occasion appointed for the purpose of reporting to next year's meeting any proposals for a modification of the statutes. Reference was made more especially to such a change as would confer on the German Naturalists' Society a more stable existence; in fact, an organisation somewhat similar to that of the British Association.

Of the 4155 members and associates present, Berlin was represented by 1444, other places by 2711 (including 429 foreigners), as under: Europe, 347; America, 54; Asia, 18; Africa, 6; Australia, 4. Most of the leading representatives of German science were present, although illness unfortunately prevented the attendance of Von Helmholtz, Kirchoff, and Wislicenus, the first and last of whom had undertaken to deal with some matters of general interest.

Under the presidency of the two administrators, Prof. Rudolf Virchow and Prof. A. W. Hofmann, the first sitting was held on Saturday, September 18, when an audience filling the spacious Circus Renz was addressed by Herr Virchow on the development of the Society from modest beginnings, and its present importance for the mutual interdependence of the various branches of the natural and therapeutic sciences. He dwelt on the progress made since the first meeting in Berlin, in 1828, under the presidency of Alexander von Humboldt, which had been attended by Oerstedt, Berzelius, Gauss, Weber, Johannes Müller, Mitscherlich, Rose, Magnus, Ehrenberg, but from which Goethe had absented himself. The importance of these illustrious *savants* for the development of the physico-chemical and biological sciences, and the continuity of their researches with the problems now under discussion, formed the conclusion of this highly instructive opening address. After receiving the felicitations of the representative of the Minister of Public Instruction, Von Gossler, of the Berlin Oberbürgermeister, and the Rector of the University, and after the meeting had made choice of Wiesbaden for next year's gathering under Prof. Fresenius and Dr. Pagenstecher, Dr. Werner Siemens discoursed on "The Scientific Character of the Age." The speaker dilated on the spread of the natural sciences through these periodical gatherings and through their introduction into the school-room, thus influencing the *technique* of the arts, which in their turn react powerfully on the social relations, so that, by his command of the forces of Nature, man is now enabled to produre the necessaries and the pleasures of life in greater abundance with less expenditure of time and labour. He is certainly not able to overcome all the evils inherent to the present period of transition; but our scientific age promises to discover all the remedies calculated to alleviate and cure the ills from which we now suffer.

At the second general sitting, held on September 22, Prof. Pohlmann, of Buffalo, conveyed the greetings of the American Association to the German Naturalists, together with a general invitation to the International Medical Congress to be held next year in Washington. Prof. Ferdinand Cohn, of Breslau, then spoke on "Vital Questions," dealing with the nature of life from the present scientific stand-point, in reference more especially to the simplest living beings, the lowest plants, whose vital functions he described in attractive language. He considered that we had already half solved the riddle of life, inasmuch as we had grasped its mechanism and the physical and chemical forces which set it in motion. But we have to face other phenomena and active forces, which must be clearly fathomed by the more fortunate efforts of future research, so that the full solution of the problem of life may perhaps be deferred to a remote period. The next speaker was Herr George Schweinfurth, from Cairo, who spoke on "Europe's Mission and Prospects in Central Africa," arguing energetically for the possibility and necessity of colonising that region. He described the wealth of this continent, both in natural resources and available labour, which by colonisation alone could be properly utilised in order not only to insure a happy and worthy future for the natives of Africa, but also to open a wide field of fruitful activity for the already crowded populations of Europe. He warmly combated the assumptions that its tropical climate closed the door of Africa to most Europeans, and that acclimatisation was impossible. Under certain precautionary measures, and when Western culture has reclaimed Africa by railways, draining, disafforestation, tillage, and stock-breeding, just as Europe itself has been reclaimed by the hand of man, then the white race will find itself as much at home in Africa as the Negro. After the transaction of some formal business, Prof. His, of Leipzig, addressed the meeting on "The Development of the Zoological Station at Naples, and on the Growing Urgency of a Scientific Central Establishment." From the information gained by repeated personal visits, he gave a vivid description of the Neapolitan Station, and concluded by indicating the chief objects of such a central institution as he considered should now be founded. Amongst these objects he mentioned the investigation of the anatomy of the brain, which could be best carried out in such a central station.

At the third general sitting, held on September 24, Dr. Ludwig Wolf, of Dresden, reported on his journey to Central Africa, describing his route from Leopoldville, on the Kassai, and its copious affluent, the Sankuru, through the domain of the Bakutu, the Bakuba, the Balula, and Lunda peoples. He gave an animated picture of his experiences on this journey, which he made as a member of the Wissmann Expedition. He was followed by Prof. Neumayer, of Hamburg, who urged the necessity of Antarctic exploration, dilating especially on its importance for geology and palæontology. From it he anticipated an answer to the question how, as he assumed, the South Pole had been a centre of dispersion for living organisms throughout the southern, as the North Pole is now generally supposed to have been for the northern hemisphere. He further dwelt upon the great value of terrestrial magnetic observations in high southern latitudes, since in the far north a whole chain of stations had recorded the extent of the fluctuations of the magnetic needle. Simultaneous observations in the north and south will alone enable us to arrive at definite conclusions on the nature of